

97-282334/26	A88 J01	KNVS 95.12.07	A(3-A4A, 8-D, 11-B5D, 11-C2, 12-W11A) J(1-C3)
GKSS FORSCHUNGSZENTRUM GEESTHACHT GMBH		*DE 19545701-C1	
95.12.07 95DE-1045701 (97.05.28) B01D 69/12, 61/00, 67/00	<u>ADVANTAGE</u>	An efficient hydrophilic NFM with high thermal stability and good stability in organic solvents, which is produced by a simple, low-cost process without using organic solvents or environmentally harmful substances.	

PREFERRED MEMBRANE

The HAC is crosslinked with dialdehydes(s), preferably glyoxal or glutaric dialdehyde, until it becomes insoluble in water. Membrane (A) consists of polyether-imide, polyacrylonitrile, polysulphone or PVDF. Layer (B) has a thickness of 0.01-0.5 micron. The NFM has a high retention for substances with a mol. wt. of 300 and upwards, combined with a NaCl retention of less than 20%, and is stable in aqueous solutions containing more than 5 wt% organic solvent such as alcohols, ethers, amines or esters. Operating temperatures of more than 70° C are used for separation processes

EXAMPLE

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Composite nano-filtration membrane (NFM) with a known base membrane (A) and a selective separation layer (B) of cellulose hydroxyalkyl ether (HAC) is claimed, in which membrane (A) is coated with an aqueous solution of HAC and the HAC is crosslinked with acetal groups by reaction with aldehyde(s).

Also claimed is a process for the production of NFM by coating (A) with an aqueous solution of HAC and crosslinking the HAC as above.

USE

In membrane filtration processes for the separation of the components of systems containing substances with mol. wts. of 200-2000.

Asymmetric polyether-imide membranes were coated with 0.1 wt% aqueous hydroxypropyl-cellulose solution and then crosslinked with glutaric dialdehyde for 20 mins. at 70° C. The membranes were then evaluated in dead-end filtration tests at 20° C with a trans-membrane pressure difference of 10 bar, using solutions of low-mol. wt. compounds in aqueous systems contaminated with 10 wt% organic solvent.

Under these conditions the membranes showed mol. wt. cut-off values of 600, 610, 590, 575, 620 and 525 for mixtures contaminated with acetone, MEK, ethanol, isopropanol, THF and EtOAc (5 wt%) respectively, with corresponding substance flow rates of 1.25, 1.32, 1.22, 1.19, 1.46 and 1.11 $l/m^2/hr./bar.$ (SL) (6pp1712DwgNo.0/0)

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